which had received injections of digitalis lived several hours or even days longer than either the control rabbits or those given aleuron. Definite quantities of the drugs and of pneumococcus cultures were injected according to the weight of the animals. Both aleuron and digitalis, harmless in themselves to animals, produced a marked leucocytosis, but they differed essentially in the fact that after the injection of aleuron the hyperleucocytosis was quickly followed by a leukolysis and finally a hypoleucocytosis, while with digitalis the hyperleucocytosis was sustained for a comparatively long period. To these facts was attributed the favorable action of digitalis and the failure of aleuron to prolong the life of the animals.—W. T. L.

HYGIENE AND PUBLIC HEALTH.

UNDER THE CHARGE OF

CHARLES HARRINGTON, M.D.,

ASSISTANT PROFESSOR OF HYGIENE, HARVARD MEDICAL SCHOOL.

Is Typhoid Fever Sometimes Air-borne?—In support of the theory that typhoid fever may be air-borne, QUILL (*British Medical Journal*, February 15, 1902) gives an account of the circumstances which obtained in a military camp in the hills of Ceylon, where large numbers of Boer prisoners were confined. An epidemic of typhoid fever developed, and no less than six hundred cases occurred. The water-supply was analyzed chemically once a week, and was examined bacteriologically with frequency. No fresh milk was allowed in camp. All carbonated water used was from the same source as that supplied to a neighboring sanitarium, in which no typhoid fever occurred. No uncooked food of any description was used, and peddlers of all kinds were rigidly excluded from the camp. All persons leaving the grounds, for any purpose whatever, were required to carry with them a bottle of filtered water. Since these sanitary regulations were enforced thoroughly, Quill believes that the infection was air-borne from an adjoining camp of prisoners, where the disease prevailed, although the possibility of transmission through the agency of flies after visiting specifically infected latrines must be borne in mind.

VAUGHAN (*Journal of the American Medical Association*, April 19, 1902) also believes that dissemination of the typhoid fever bacillus in dust through the air has been clearly demonstrated, but he believes that the most important means of dissemination of the disease is specifically polluted drinking-water. Frequently the infective agent is carried on the hands and clothing of nurses and other attendants. It is his belief that the disease is never spread by exhaled air, although the organism may exist in the sputum.

JEHLE (*Wiener klinische Wochenschrift*, February 27, 1902) has found the bacillus in the sputum of cases of bronchitis with no lesions of the intestine, which suggests the possibility of inhalation with dust.

In the opinion of TURNER (*British Medical Journal*, February 15, 1902) it is a mistake to attach very great importance to wind and flies in the causation of epidemics of typhoid fever. His experience of six years in South Africa has led him to believe that, in the great majority of cases, the cause is to be found in a polluted water-supply. He does not deny the possibility of air-borne typhoid, but points out that if dust infection were a predominating or even an important cause of typhoid fever, one would expect to find the disease most prevalent from shortly after the beginning of the dusty season until shortly after its close; but he notes, as a matter of fact, that it is during this very period that typhoid fever is least prevalent. On the other hand, it is during the wet season, when, on account of heavy rain, there is no dust, that the disease is most prevalent. Although conceding the possibility of the transmission of typhoid fever by flies, he points out that, in South Africa, flies begin to be troublesome long before typhoid fever prevails, and continue to be so long after its subsidence. In answer to the criticism that typhoid fever prevailed among the British troops in spite of the fact that filters were provided, he asserts, of his own knowledge, that the filters were not generally used, and that where the commanding officer of a regiment enforced the use of filters the number of cases in that particular body was insignificant.

SCHÜDER (*Zeitschrift für Hygiene und Infectionskrankheiten*, Band xxxviii., p. 343) has collected reports of 650 epidemics of typhoid fever in all parts of the world, of which 377 occurred in Germany, 140 in England, and 66 in France. It appears that 70.8 per cent. of these were due to contaminated water, 17 per cent. to contaminated milk, and 3.5 per cent. to other foods. In reality, water as a cause preponderated even more than is here shown, since even among those attributed to milk and other foods, as oysters, etc., it is probable that in some instances a polluted water may have been a contributing if not the main cause. Speaking also of the transmission of the disease from person to person, he takes as a measure of the danger the relation between the whole number of cases in certain hospitals and clinics and the number of cases occurring among the nursing staff and among other patients. Of 35,617 cases of the disease, 1179—that is to say, 3.3 per cent. —occurred among the nursing staff and other patients; of 23,554 cases in the Prussian military hospitals during the period 1881-1897, 1012, or 4.3 per cent., were among the personnel of the hospital; and 478—that is to say, 2 per cent.—among patients who were present on account of other sickness. The vehicle of infection is chiefly the discharges, and particularly the urine, of those sick and convalescent. He recommends the protection of the nursing body by antityphoid inoculations, according to the method of Marsden and Wright.

Preservation of Meat by Means of Borax.—VAUGHAN and VEENBOER (*American Medicine*, March 15, 1902, p. 421), experimenting with borax on meat, found that meat not treated with borax, and kept at ordinary temperatures, becomes slimy within a few days. From the surfaces of specimens so kept they isolated twenty different species of micro-organisms, fourteen of which were peptonizing bacteria. Inasmuch as it is the usual practice to wash meats so treated as soon as they arrive at their destination, they see no objection to this use of borax; and it would appear reasonable and proper to allow the practice, provided the preservatives do not pene-